REMARKS

Claim 15 is amended to depend from claim 12. No new matter is added by this Amendment. Upon entry of the Amendment, which is respectfully requested, claims 1-24 will be pending.

Response to Claim Objections

Referring to page 8 of the Office Action, claim 15 is objected to because the Examiner indicates it should dependent on claim 12 where the enzyme is first mentioned.

Claim 15 is amended to depend from claim 12 as suggested by the Examiner, therefore, withdrawal of the objection is respectfully requested.

Response to Claim Rejections under 35 U.S.C. § 112

Referring to page 8 of the Office Action, claims 1-24 are rejected under 35 U.S.C. § 112, second paragraph, as allegedly being indefinite. According to the Examiner, it is not clear if the hydrophobic polymers of the preamble are the same as the hydrophobic polymers of the body of the claim.

Applicants traverse and respectfully request the Examiner to reconsider in view of the following remarks.

By nature of employing the article "the", a person having ordinary skill in the art can ascertain that "the hydrophobic polymer" recitations in the body of the claim refers to "a thermoplastic or thermosetting hydrophobic polymer" of the preamble. Accordingly, it is respectfully requested that the § 112, second paragraph, of claims 1-24 be withdrawn.

Referring to 9 of the Office Action, claim 17 and 24 are rejected under 35 U.S.C. § 112, second paragraph, as allegedly being indefinite. According to the Examiner the definition of "nkat/g" is indefinite.

Applicants traverse and respectfully request the Examiner to reconsider in view of the following remarks.

At pages 4 and 10 of the Action, the Examiner states:

> In general activity values are measured in comparison to a standard set of assay conditions not a set of conditions which changes based on variable temperatures/pH's [see e.g. Units of Enzyme Activity pg. 319 #1]. Since the Applicant gives variable temperatures/pHs that can be used, the definition of nkat/g is also necessarily variable and indefinite.

The Examiner's argument fails to distinguish between two distinct senses of activity value. In "Chapter 4 (Enzyme Units) of *Enzyme Nomenclature: Recommendations 1964* of the International Union of Biochemistry" of *Units of Enzyme Activity* at page 319, a standard unit of enzyme activity is defined as that amount which will catalyze the transformation of 1 micromole of the substrate per minute under standard conditions. It is noted that Pederson calculates laccase enzyme activity in micromol per minutes.

According to *Units of Enzyme Activity*, the katal was introduced at the same time to define a new unit of enzyme activity. Particularly, the katal is used to express catalytic activity, and its numerical quantity value depends on the experimental conditions. *Units of Enzyme Activity* pg. 319 discloses that katal enzyme activity is the property measured by the increase in the rate of reaction of a specified chemical reaction that the enzyme produces in a specific assay system.

A person having ordinary skill in the art recognizes the difference between enzyme activity measure in micromol per minutes and enzyme activity measures in katals. Furthermore, the present specification provides sufficient disclosure of the activation treatment described at page 8 and the specific conditions of each chemical reaction described in the working examples

(see *e.g.*, Examples 4-6) so that enzyme activity can be calculated in katals. The determination of the enzyme activities has been carried out in the examples in the same conditions (pH, temperature) using standard activity measurements in the conditions in which the enzyme treatments of the materials have been effected.

Accordingly, it is respectfully requested that the § 112, second paragraph, of claims 17 and 24 be withdrawn.

Response to Claim Rejections under 35 U.S.C. § 103

Referring to page 11 of the Office Action, claims 1-24 are rejected under 35 U.S.C. § 103(a) as allegedly being unpatentable over U.S. Patent No. 6,187,136 (Pederson) in view of U.S. Patent Application Publication No. 2002/0096282 (Leibler).

Applicants traverse and respectfully request the Examiner to reconsider in view of the following remarks.

The present invention relates to a process for producing a composite in which the phenolic groups of a lignocellulosic fibrous matrix are oxidized, the oxidized fibre material is contacted with a modifying agent containing at least one first functional portion, which is compatible with the oxidized fibre material, and at least one second hydrophobic portion, which is compatible with a thermoplastic or thermosetting hydrophobic polymer, and the modified fibre is contacted with the thermoplastic or thermosetting hydrophobic polymer.

The presently claimed invention renders the fibres hydrophobic by attaching to them a hydrophobic component via a chemical bond using a radical mechanism either directly or via a tag which improves adhesion of the fibres with hydrophobic composite polymers. The presently claimed invention relates to covalent bonding and can be used with both untreated fibres as well as fibres treated with ferulic acid.

Leibler discloses a process for the treatment of paper consisting of the application of a cationic resin and of an aqueous dispersion of particles of a thermoplastic polymer. In Leibler, a latexin is first produced (*e.g.*, from a thermoplastic polymer) and then mixed with a cationic PAE which may increase the bonding of the latex particles to the fibres through adsorption. At [0018], Leibler discloses that the cationic resins used for implementing the invention are crosslinkable at neutral pH on the cellulose fiber. Leibler relates to physical-chemical phenomenon.

In Pederson, a phenolic group is grafted to the oxidized lignocellulosic material and can confer a negative charge allowing it to ionically bind to a strengthening agent.

A person having ordinary skill in the art would not have been motivated to combine Leibler's cationic resins (PAE) mixed with a dispersion of particles of a thermoplastic polymer with the negatively charged, modified lignocellulosic material of Pederson to arrive at the claimed invention without benefit of the present disclosure. Furthermore, even if Leibler were to be combined with Pederson, a person having ordinary skill in the art would not arrive at the presently claimed invention. Specifically, if a person having ordinary skill in the art were to combine the cited references, he would expect the ferulic acid to ionically bind to the PAE cationic resin. However, the present invention requires that the modifying agent is compatible with and contacts the thermoplastic or thermosetting hydrophobic polymer. Neither Pederson nor Leibler rendered obvious the presently claimed invention, whether taken alone or in combination.

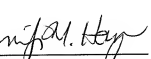
Accordingly, Applicants respectfully request reconsideration and withdrawal of the § 103 rejection of claims 1-24 based on Pederson and Leibler.

Conclusion

In view of the above, reconsideration and allowance of this application are now believed to be in order, and such actions are hereby solicited. If any points remain in issue which the Examiner feels may be best resolved through a personal or telephone interview, the Examiner is kindly requested to contact the undersigned at the telephone number listed below.

The USPTO is directed and authorized to charge all required fees, except for the Issue Fee and the Publication Fee, to Deposit Account No. 19-4880. Please also credit any overpayments to said Deposit Account.

Respectfully submitted,



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